

**What is claimed is:**

1. An isolated polynucleotide segment comprising: a first polynucleotide sequence, or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence is selected from the group consisting of:
  - (a) a polynucleotide consisting of SEQ ID NO:1; and,
  - (b) a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to **thirty** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).
2. The isolated polynucleotide segment of claim 1, wherein the first polynucleotide sequence is selected from the group consisting of: the polynucleotide of (a); and, a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to **ten** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).
3. The isolated polynucleotide segment of claim 1, wherein the first polynucleotide sequence is selected from the group consisting of: the polynucleotide of (a); and, a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to **five** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).
4. A vector comprising the isolated polynucleotide segment of Claim 1.
5. An isolated host cell comprising the vector of claim 4.

6. An isolated polynucleotide segment, comprising a first polynucleotide sequence, or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence is selected from the group consisting of

(a) a polynucleotide which encodes the same mature polypeptide, expressed by the ribG gene expressed by a polynucleotide comprising SEQ ID NO:1 contained in *Staphylococcus aureus* WCUH 29 contained in NCIMB Deposit No. 40771; and,

(b) a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to five nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).

7. The isolated polynucleotide segment of claim 6, wherein the first polynucleotide sequence is selected from the group consisting of: the polynucleotide of (a); and, a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to three nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).

8. An isolated polynucleotide segment, comprising a first polynucleotide sequence or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence hybridizes to the full complement of SEQ ID NO:1, wherein the hybridization conditions include incubation at 42°C in a solution comprising: 50% formamide, 5x SSC (150mM NaCl, 15mM trisodium citrate), 50 mM sodium phosphate (pH7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 micrograms/ml denatured, sheared salmon sperm DNA, followed by washing in 0.1x SSC at about 65°C.

9. The isolated polynucleotide segment of claim 8, wherein the first polynucleotide sequence is identical to SEQ ID NO:1 except that, over the entire length corresponding to SEQ

ID NO:1, up to **five** nucleotide are substituted, deleted or inserted for every 100 nucleotides of SEQ ID NO: 1.

10. The isolated polynucleotide segment of claim 8, wherein the first polynucleotide sequence is identical to SEQ ID NO:1 except that, over the entire length corresponding to SEQ ID NO:1, up to **three** nucleotide are substituted, deleted or inserted for every 100 nucleotides of SEQ ID NO: 1.

11. An isolated polynucleotide segment, comprising a first polynucleotide sequence or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence is selected from the group consisting of:

- (a) a polynucleotide which encodes a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2; and,
- (b) a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to **five** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).

12. A vector comprising the isolated polynucleotide segment of Claim 11.

13. An isolated host cell comprising the vector of claim 12.

14. The isolated polynucleotide segment of claim 11, wherein the first polynucleotide sequence is selected from the group consisting of:

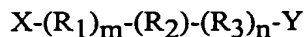
- (a) a polynucleotide which encodes a polypeptide consisting of the amino acid sequence set forth in SEQ ID NO:2; and,

(b) a nucleic acid sequence identical to the polynucleotide of (a) except that, over the entire length corresponding to the polynucleotide of (a), up to **five** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (a).

15. A vector comprising the isolated polynucleotide segment of claim 14.

16. An isolated host cell comprising the vector of claim 15.

17. A composition comprising the isolated polynucleotide segment of claim 1, which isolated polynucleotide segment is according to the formula:



wherein, at the 5' end of the molecule, X is hydrogen, and at the 3' end of the molecule, Y is hydrogen or a metal,  $R_1$  and  $R_3$  are any nucleic acid residue, m is an integer between 1 and 3000 or zero, n is an integer between 1 and 3000 or zero, and  $R_2$  is the first polynucleotide sequence.

18. An isolated polynucleotide segment comprising: a first polynucleotide sequence, or the full complement of the entire length of the first polynucleotide sequence, wherein the first polynucleotide sequence is selected from the group consisting of:

(a) a polynucleotide encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:4;

(b) a polynucleotide consisting of SEQ ID NO:3; and,

(c) a nucleic acid sequence identical to the polynucleotide of (b) except that, over the entire length corresponding to the polynucleotide of (b), up to **thirty** nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (b).

19. The isolated polynucleotide segment of claim 18, wherein the first polynucleotide sequence is selected from the group consisting of: the polynucleotide of (b); and, a nucleic acid sequence identical to the polynucleotide of (b) except that, over the entire length corresponding to the polynucleotide of (b), up to ~~ten~~ nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (b).

20. The isolated polynucleotide segment of claim 18, wherein the first polynucleotide sequence is selected from the group consisting of: the polynucleotide of (b); and, a nucleic acid sequence identical to the polynucleotide of (b) except that, over the entire length corresponding to the polynucleotide of (b), up to ~~five~~ nucleotides are substituted, deleted or inserted for every 100 nucleotides of the polynucleotide of (b).